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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/801,719 | 03/17/2004 | Toshimi Yamashita | 016907-1622 | 1885 |
| 22428 | 7590 | 06/28/2005 | EXAMINER | |
| FOLEY AND LARDNER SUITE 500 3000 K STREET NW WASHINGTON, DC 20007 | | | LEE, PETER | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2852 | |

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/801,719 | YAMASHITA, TOSHIMI | |
| | Examiner | Art Unit | |
| | Peter Lee | 2852 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-18 is/are allowed.
- 6) ☒ Claim(s) 19-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 July 2004 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 19-22, 30, 33, 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakagami et al. (US 5532798).

Nakagami teaches a corona charging device (Fig. 2a; note: col. 4 lines 25-30) (ie. charger) comprising: a plate electrode (fig. 2a part 2) having a plurality of protrusions (fig. 2b part 2a) (ie. electrode comprising a plurality of charging needles) for providing a charge onto a photosensitive member (fig. 1 part 101; note: col. 4 lines 20-30) (ie. image carrier); a cleaning device (fig. 2a part 1) (ie. cleaning mechanism) contacting the plate electrode, and removing silicon and the likes which adheres to the electrode over time (note: col. 4 lines 50-55) ie. removing deposits electrostatically deposited on the electrode); and a moveable member (fig. 2a part 4) (ie. moving mechanism) which moves the cleaning device along the electrode (col. 4 lines 57-63);

Nakagami also teaches the plate electrode having a first plane including a straight line in an axial direction of the photosensitive member (Fig. 1; charger 103 is aligned on a plane in the axial direction to the surface of the photosensitive member 101) (ie. electrode is a sheet shaped electric conductor having a first plane including a straight line in an axial direction of the image carrier); and the cleaning device having scraping members (fig. 13a parts 41 a-d) (ie. sheet

portion) having a second plane disposed vertically to the first plane of the plate electrode (fig. 13c) (ie. cleaning mechanism comprises a sheet section having a second plane arranged perpendicularly to the first plane of the electrode) and the movable member (ie. holding member to movably hold) is used to hold the scrapers in contact with the plate electrode for cleaning purposes (col. 10 lines 11-20) (ie. electrode cleaning mechanism cleans the tips by contacting the charging needles with the sheet section which moves in a non-rolling fashion);

Nakagami also teaches the photosensitive member (ie. image carrier which holds a latent image and developer image) having around it a developing device (fig. 1 part 105) and a transfer charger (fig. 1 part 107; note col. 4 lines 16-29) (ie. transfer device) for transferring an image onto an output medium.

Nakagami also teaches that the drive mechanism (col. 11 lines 20-27) (ie. driving means) for the cleaning device is controlled by a specific method and equation (col. 15 lines 10-45) (ie. operate the driving means with an instruction from a control panel/CPU). Control of the driving means is made via this equation. The controlling method employs blade sensors (col. 15 lines 9-24) for detecting the position of the cleaning mechanism along the electrode (part2) and taking this information into account when operating the cleaning mechanism (col. 15 lines 10-50) (ie. cleaning mechanism detecting sensors that determine whether to move the electrode cleaning mechanism).

Nakagami also teaches the above mentioned charging device to be part of an image forming apparatus that includes a developing device (fig. 1 part 105) and a transfer charger (fig. 1 part 107).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 23, 28, 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagami in view of Nakaoka et al. (US 4788573).

Nakagami teaches all of the limitations to the claims as laid out above. He also further teaches the use of a receiving plate (fig. 11 part 32) (ie. holding plate) for receiving the adhered particles removed from the electrode (col. 9 lines 35-40); and the scrapping member being made of a flexible sheet (col. 10 lines 7-10) (ie. film like elastic sheet).

He does not teach the scraping members (ie. cleaning sheets) being made so as to change its shape according to an applied predetermined stress.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the scraping member taught in Nakagami to be pressed against the electrode with a predetermined pressure force as taught by Nakaoka so as to determine its shape. One of ordinary skill in the art would have been motivated to do so in order to obtain a desirable contacted range between the electrode and the cleaning portion/sheet (col. 4 lines 1-10).

5. Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagami in view of Sato et al. (US pn 5946529).

Nakagami teaches all of the limitations of the claims as laid out above, however does not

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teach the scrapping members (ie. cleaning sheet) having a particular thickness (ie. 10 to 100 μm ; more specifically 25 to 75 μm).

It is Sato who teaches a charge roller (fig. 1 part 21) (ie. electrode) having a cleaning member (fig. 3 part 22) (ie. cleaning sheet) with an elastic member (fig. 3 part 22a) (ie. part of the cleaning sheet) that is said to have a thickness of between 50-100 μm .

Although the invention taught by Sato does not disclose a charging apparatus with an electrode in the form of a plurality of protrusions, Nakagami and Sato are analogous art because they both teach a charging apparatus that charges a photosensitive member. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the scrapping member taught by Nakagami to have a thickness of between 50-100 μm as taught by the elastic cleaning member in Sato. One of ordinary skill in the art would have been motivated to do so because this level of thickness allows the ideal level of elasticity to promote cleaning (col. 3 lines 40-45).

6. Claims 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagami in view of Hensel (US pn 5940656).

Nakagami teaches all of the limitations as laid out above. He does not disclose the use of an abrasive on the surface of the cleaning sheet.

It is Hensel who teaches the use of an abrasive material in the operation of cleaning an electrode member of a corona charger.

It would have been obvious to a person of ordinary skill in the art at the time the

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invention was made to modify the scrapping members taught by Nakagami to include an abrasive material as taught by Hensel. One would have been motivated to do so in order to forcibly scrape burnt toner and debris from the electrode member (col. 3 line s19-25).

7. Claim 31, 36 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagami in view of Tashiro et al. (US pn 6415120).

Nakagami teaches all of the limitations of the claims as laid out above, including the cleaning scrapping member being made of a flexible sheet (col. 10 lines 7-10) (ie. film like elastic sheet), and he also further teaches the use of a receiving plate (fig. 11 part 32) (ie. holding plate) for receiving the adhered particles removed from the electrode (col. 9 lines 35-40).

He does not teach the moveable member operating a driving means after a predetermined number of output media have been printed.

It is Tashiro who teaches a charging device having a cleaning member (fig. 1 part 1) being driven by a motor (fig. 2 part 3) (ie. driving means) on a screw shaft (fig. 1 part 5) (ie. moving mechanism); and also teaches the practice of employing the cleaning mechanism at a timing based on the completion of a predetermined number of printed pages.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the cleaning mechanism of Nakagami to operate at intervals based on a predetermined number of printed pages as taught by Tashiro. One of ordinary skill in the art would have been motivated to do so in order to achieve increased image quality by decreasing charge unevenness (col. 1 lines 25-33).

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8. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagami in view of Kawamura.

Nakagami teaches all of the limitations to claims as laid out above. He does not teach a driving means of a cleaning device not being operated while an image is being formed.

It is Kawamura who teaches a cleaning process for a charging roller (fig.1 part3) being operated only between image forming times or during image stoppage times such as paper jams (page 4 paragraph [0073]) (ie. not operated while image is being formed).

Although the invention taught by Kawamura pertains to a charging roller and not a needle type charger as taught by Nakagami, they are seen to be analogous art because they serve the same purpose of charging a photosensitive member in an image forming apparatus. It would have been obvious to a person of ordinary skill at the time the invention was made to modify the charging apparatus taught by Nakagami to allow a cleaning operation on the charging member only during non-image forming times as taught by Kawamura. One of ordinary skill in the art would have been motivated to operate a cleaning process only during non-image forming times because it has been shown to improve image quality by reducing defects such as fog, uneven images and light interception (page 5 paragraph [0081]).

9. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagami in view of Tashiro as applied to claim 12 above, and further in view of Hensel (US pn 5940656).

The invention taught by Nakagami in view of Tashiro teach all of the limitations as laid out above, however does not teach the use of an abrasive applied to a surface of a cleaning sheet.

It is Hensel who teaches the use of an abrasive material in the operation of cleaning an

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electrode member of a corona charger.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the scrapping members taught by Nakagami in view of Tahiro to include an abrasive material as taught by Hensel. One would have been motivated to do so in order to aid in forcibly scrape burnt toner and debris from the electrode member (col. 3 lines 19-25).

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yamashita et al. (US 20050074256) is being cited for teaching a cleaning member that moves along the tip portion of a needle type electrode charger.

Response to Amendment

Enter amendments.

Allowable Subject Matter

12. Claims 1-18 are allowed.

The primary reason for allowance of claims 1-18 is the inclusion of a cleaning mechanism that contacts the tip ends of an electrode having a plurality of charging needles, the cleaning mechanism including a sheet section having a second plane arranged perpendicularly to a first plane of the electrode, that is found in all of claims 1-18, but not disclosed nor suggested by the prior art of record.

Response to Arguments

13. Applicant's arguments filed April 14, 2005 have been fully considered but they are not persuasive. Applicant argues on p. 12 of the response that Nakagami et al. does not teach the scraping members (parts 41 a-d) effectively touching the tip portions of the electrode (part 2). It is the view of the examiner that the purpose of the scraping members is to scrape through physical contact with the electrode, any contaminants that may reside on the surface thereof. Therefore, it is viewed that Nakagami teaches the scraping members to come into close enough proximity contact to the tip portions to scrape off any contaminants, so that its flexible characteristics will allow for the scraping members to effectively be in contact with the tip portions. This is the premise for the rejections of the newly added claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Lee whose telephone number is 571-272-2846. The examiner can normally be reached on mon-fri 9:00 am-5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Arthur Grimley can be reached on 571-272-2136. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PL 6/24/2005



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